



10/742,120

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February 27, 2004

To: Commissioner for Patents  
P.O.Box 1450  
Alexandria, VA 22313-1450

Fr: George O. Saile, Reg. No. 19,572  
28 Davis Avenue  
Poughkeepsie, N.Y. 12603

Subject: | Serial No. 10/742,120 12/19/03 |

Chih Kiong Terence Gan et al.

SINGLE-CRYSTAL-SILICON 3D  
MICROMIRROR

#### INFORMATION DISCLOSURE STATEMENT

Enclosed is Form PTO-1449, Information Disclosure Citation  
In An Application.

The following Patents and/or Publications are submitted to  
comply with the duty of disclosure under CFR 1.97-1.99 and  
37 CFR 1.56.

#### CERTIFICATE OF MAILING

I hereby certify that this correspondence is being  
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P.O. Box 1450, Alexandria, VA 22313-1450, on March 1, 2004.

Stephen B. Ackerman, Reg.# 37761

Signature/Date

 3/1/04

The following two U.S. Patents discloses mirrors fabricated from thick single crystal silicon and actuators fabricated from thin single crystal silicon:

- 1) U.S. Patent 6,563,106 to Bowers et al., "Micro-Electro-Mechanical-System (MEMS) Mirror Device and Methods for Fabricating the Same."
- 2) U.S. Patent 6,556,737 to Miu et al., "Silicon Bulk-Micromachined Electromagnetic Fiber-Optics Bypass Microswitch."

U.S. Patent 6,504,643 to Peeters et al., "Structure for an Optical Switch on a Substrate," discusses having a single crystal silicon mirror and MoCr electrostatic and parallel plate actuators requiring high voltage.

U.S. Patent 6,480,320 to Nasiri, "Microelectromechanical Mirror and Mirror Array," describes thick single crystal silicon micromirrors and silicon-on-insulator (SOI) single crystal silicon electrostatic and parallel plate actuators requiring high voltage.

U.S. Patent 6,386,716 to Hagelin et al., "Optical Mirror System with Multi-axis Rotational Control," discloses polysilicon micromirrors and electrostatic actuators requiring high voltage.

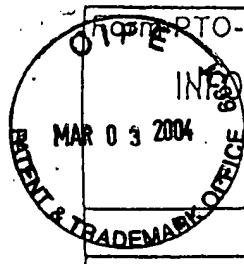
The article "Micromirrors for Adaptive-optics Arrays," by Michael A. Helmbrecht et al., Transducers '01 Eurosensors XV, June 2001, describes micromirrors built using wafer bonding techniques.

The artical "Three-dimensional structures obtained by double diffusion and electrochemical etch stop," by S. Marco et al., Journal of Micromech. Microeng. 3, (1993), pp. 141-142, discloses a two-step silicon layer method of forming non-uniform diaphragms and bridges.

Sincerely,



Stephen B. Ackerman,  
Reg. No. 37761



seen Lot 1

 <b>INFORMATION DISCLOSURE CITATION</b> <b>IN AN APPLICATION</b> <b>AR 03 2004</b> <i>(Use several sheets if necessary)</i>	DOCKET NUMBER (SPECIFIC) <b>IME-03-010</b> APPLICANT <b>Chih Kiong Terence Gan et al.</b> FILING DATE <b>12/19/03</b>	APPLICATION NUMBER <b>10/742,120</b> GROUP OR UNIT
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**U. S. PATENT DOCUMENTS**

## FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						YES	NO

**OTHER DOCUMENTS** (Including Author, Title, Date, Portion or Page, Etc.)

- "Micromirrors for Adaptive-optics Arrays", by Michael A. Helmbrecht et al., Transducers'01 Eurosensors XV, June '01.
  - "three-dimensional structures obtained by double diffusion and electrochemical etch stop" by S.Marco et al., Jnl of Micromech. Microeng. 3 (1993), pp.141 - 142.

EXAMINER	DATE CONSIDERED
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**EXAMINER:** Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.